REGULATORY GUIDE

NEBRASKA DEPARTMENT OF HEALTH AND HUMAN SERVICES
REGULATION AND LICENSURE

REGULATORY GUIDE 2.1

GUIDE FOR THE PREPARATION OF APPLICATION FOR CERTIFICATE FOR REGISTRATION OF SERVICES FOR RADIATION SOURCES

A. INTRODUCTION

The purpose of this guide is to provide assistance to persons providing services in preparing the application for Certificate of Registration of Services for Radiation Sources (Form NRH-9). 180 NAC 2-005 (Control of Radiation-Ionizing) contains the requirements that must be met to receive a certificate. Other applicable regulations are 180 NAC 2-006, 2-007, 2-008, 2-010 and 2-011, and 180 NAC 18-008 (Category of Services).

B. APPLICATION

Upon receipt of the completed NRH-9 (Application for Registration of Services for Radiation Sources) and any additional information, a determination will be made if the registrant meets the requirements of the regulations (including submittal of training and experience, indicated services provided, procedures and etc.)

REGISTRATION FEES

Upon approval of the Application for Registration of Services for Radiation Sources a bill for the annual fee listed in 180 NAC 18-008 (Category of Services) will be sent. The check or money order should be made payable to the Nebraska Department of Health and Human Services Regulation and Licensure.

Mail the invoice and payment to the Nebraska Department of Health and Human Services Regulation and Licensure, Public Health Assurance Division, 301 Centennial Mall South, P.O. Box 95007, Lincoln, NE. 68509.

Regulatory Guides are issued to describe and make available to the public acceptable methods of implementing specific parts of Title 180 NAC Nebraska regulations, "Control of Radiation," to delineate techniques used by the staff in evaluating specific problems or postulated accidents, or to provide guidance to applicants, licensees, or registrants. Regulatory Guides are not substitutes for regulations, and compliance with them is not required. Methods and solutions different from those set out in the guides will be acceptable if they provide a basis for the Nebraska Department of Health and Human Services Regulation and Licensure Department, Public Health Assurance Division, Radiation Control Program, to make necessary determination to issue or continue a license or certificate of registration.

Comments and suggestions for improvements in these Regulatory Guides are encouraged at all times and they will be revised, as appropriate, to accommodate comments and to reflect new information or experience. Comments should be sent to the Nebraska Department of Health and Human Services, Regulation and Licensure, Public Health Assurance Division, Radiation Control Program, 301 Centennial Mall South, P.O. Box 95007, Lincoln, NE 69509.

Requests for single copies of issued guides (which may be reproduced) should be made in writing to the Nebraska Department of Health and Human Services, Regulation and Licensure Department, Public Health Assurance Division Radiation Control Program, 301 Centennial Mall South, P.O. Box 95007, Lincoln, NE 68509.

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Upon receipt of the proper fee the Agency will issue a Certificate of Registration.

C. CONTENTS OF NRH-9

See Appendix A for NRH-9

1. Name and Street Address of Applicant (Individual or Company)

List either the individual, corporation, partnership, firm, agency, etc., who will be responsible for all matters concerning this regulation.

Location: The place of business should be specifically designated. Use of a Post Office Box as a place of business is not acceptable, but can be referenced for mailing purposes.

2. Person to Contact for Further Information

If this registration is for a corporation, partnership, firm, agency or group, submit the name of the person who will be in charge of radiation services.

3. Individual User(s)

Please attach a list of names and titles of all persons who will be providing services under this registration along with the individual's formal course and On-The-Job Training. Each service provided must be supported with evidence that the individual's training and experience has met the requirements found in 180 NAC 15 to qualify to perform this service:

Installation and/or servicing of radiation generating equipment and associated radiation generating equipment components.

Individuals installing and/or servicing radiation generating equipment are required by 180 NAC 15-033 (Nebraska Regulations for Control of Radiation-Ionizing) to have:

1. 8 hours of formal coursework in:
   -Radiation physics and instrumentation
   -Radiation protection
   -Mathematics pertaining to the use and measurement of radioactivity, and
   -Biological effects of radiation

   Please provide course outlines or syllabus of the formal course work for your service personnel. Include the duration of the formal coursework and documentation showing reference to the coursework required.

2. Six months of on-the-job training under the supervision of an individual who has fulfilled the formal coursework and OJT requirements, if the individual was not actively installing and/or servicing radiation generating equipment on November 25, 1990, per 180 NAC 15-033.

Calibration of radiation generating equipment.

Individuals installing and/or servicing radiation generating equipment are required by 180 NAC 15-033 (Nebraska Regulations for Control of Radiation-Ionizing) to have:

1. 8 hours of formal coursework in:
   -Radiation physics and instrumentation
   -Radiation protection
   -Mathematics pertaining to the use and measurement of radioactivity, and
   -Biological effects of radiation

Please provide course outlines or syllabus of the formal course work for your service personnel. Include the duration of the formal coursework and documentation showing reference to the coursework required.

2. Six months of on-the-job training under the supervision of an individual who has fulfilled the formal coursework and OJT requirements, if the individual was not actively installing and/or servicing radiation generating equipment on November 25, 1990, per 180 NAC 15-033.

Radiation protection or health physics consultants, radiation measurements or devices (See 180 NAC 15-013.03 "Qualified Expert" for training and experience requirements).

Personnel dosimetry services (See 180 NAC 15-034 for the training and experience requirements).

4. Services Provided -

Check the services that you intend to provide. In addition, submit your procedures for the services that you are providing.

Should you be providing training submit the course outline.

When services include the use of specific instruments or radioactive sources, indicate the instruments and radioactive sources available by make and model number (in the case of radioactive sources, the activity of the source).

Radioactive Material Service Requiring Registration and an Agency, NRC, or Agreement State Specific License

- Analysis of Samples for Radioactivity
- Bioassay
- Calibration of Radiation monitoring Instruments
  -If an instrument is repaired, it will need to be calibrated after the repair. Thus repair is included under calibration.

  -List the appropriate calibration, ie.

  -Nuclear Medicine Instruments - Submit procedures for performing calibration by either attaching Appendix B of this guide or your equivalent procedures.

  -Electronic Calibration of Diagnostic Radiation Generating Equipment - You do not need to submit procedures.

  -Radiation Measurement Instruments or Devices - Submit procedures for performing calibration.
- Decommissioning of Facilities
- Decontamination of Facilities
- Facility/Packaging Shielding Determination (Use of Radioactive Material)
- Leak Test Service
- Waste Disposal Services (Receipt of Waste)
  -Waste Disposal is intended for registrants that are picking up waste for storage outside of the state. If low-level waste disposal is intended instate then see 180 NAC 12.

Radioactive Material Services Requiring Registration

- Waste Disposal Consultation Services (No Receipt of Waste)

Radiation Generating Equipment Services Requiring Registration

- Devices Sales
- Demonstration and Sales (If this involves energizing of radiation generating equipment as part of the demonstration you must show proof of meeting the 180 NAC 15-033 training and experience requirements).
- Device Services (Demonstration, Installation, Electronic Calibration, Repair, Survey)

General Radiation Services Requiring Registration

- Facility Shielding Review (Calculation Only) – Submit Procedures
- Radiation Protection or Health Physics Consultation
- Radiation Survey – Submit Instrumentation and Procedures
- Personnel Monitoring – submit NVLAP Certification
  Check this box if your company is NVLAP certified to provide personnel monitoring and if so indicate what type of service you provide.
- Other

5. Certification

Individuals or representatives of a corporation or legal entity filing the application must date and sign NRH Form 9. The Agency will return all unsigned applications for proper signature.

D. REGISTRATION RENEWAL

A registration remains in effect for one year. Approximately 30 days before the renewal date a "Registration of Services Form" along with the annual fee will be sent to the registrant. The registrant will need to certify the accuracy of the information, sign the registration and submit the appropriate annual fee by the fee due date. Upon receipt of payment an updated registration will be issued.

180 NAC 2-009 requires that a registrant notify this Agency in writing within thirty (30) days of any change which would render the information contained in the registration no longer accurate per 180 NAC 2-009.

E. REGISTRATION TERMINATION

Notify this Agency, in writing, when a decision is made to termination a registration of services.

Contact this Agency at:
Radiation Control Program
Nebraska Department of Health and Human Services Regulation and Licensure
Public Health Assurance Division
301 Centennial Mall South
P.O. Box 95007
Lincoln, NE. 68509
FAX (402)471-0169
Phone: (402)471-0563

NEBRASKA DEPARTMENT OF HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE
DIVISION OF PUBLIC HEALTH ASSURANCE

RADIOACTIVE MATERIALS PROGRAM

APPLICATION FOR REGISTRATION OF SERVICES FOR RADIATION SOURCES

INSTRUCTIONS - (Use additional sheets where necessary.)
Type or Print except where indicated.
Retain one copy for your files and submit original application to: Department of Health and Human Services Regulation and Licensure, Division of Public Health Assurance, 301 Centennial Mall South, P.O. Box 95007, Lincoln, NE 68509-5007.
Upon approval of this application, the applicant will receive a Radioactive Material License, issued in accordance with the requirements contained in Title 180, Regulations for Control of Radiation and the Nebraska Radiation Control Act.

1. Name and Street Address of Applicant (Individual or Company)

Applicant Name: _____

Address: _____

_____

City, State Zip+4 _____

Telephone #: _____

FAX#: _____

E-mail Address:

2. Person to Contact Regarding this Application

_____

Telephone #_____

3. Individual User(s)

Submit in duplicate on a separate sheet(s) the Name and Title of individual(s) qualified to perform each service listed below.
Document training and experience in accordance with 180 NAC 15.

4. Services Provided (check as appropriate)

Radioactive Material Services Requiring Registration and an Agency, NRC or Agreement State Specific License:

- ☐ Analysis of Samples for Radioactivity
- ☐ Bioassay
- ☐ Calibration of Radiation monitoring Instruments
- ☐ Decommissioning of Facilities
- ☐ Decontamination of Facilities
- ☐ Facility/Packaging Shielding Determination (Use of Radioactive Material)
- ☐ Leak Test Service
- ☐ Waste Disposal Services (Receipt of Waste)

(continued)

4. Services Provided (check as appropriate) *(Continued)*

Radioactive Material Services Requiring Registration:

☐ Waste Disposal Consultation Services (No Receipt of Waste)

Radiation Generating Equipment Services Requiring Registration:

☐ Device Sales

☐ Device Services (Demonstration, Installation, Electronic Calibration, Repair, Survey)

General Radiation Services Requiring Registration:

☐ Facility/Packaging Shielding Review (Calculation Only) - Submit Procedures

☐ Radiation Protection or Health Physics Consultation

☐ Radiation Survey - Submit Instrumentation and Procedures

☐ Personnel Monitoring - Submit NVLAP Certification

☐ Other

5. CERTIFICATION
(This Item must be completed by applicant.)

The applicant and any official executing this document on behalf of the applicant named in Item 1., certify that this application is prepared in conformity with the Nebraska Department of Health and Human Services Regulation and Licensure, Title 180, Regulations for the Control of Radiation and that all information contained herein, including any Supplements attached hereto, is true and correct to the best of our knowledge and belief.

_____
Applicant Name From Item 1.

By:_____ Date: _____
Signature

_____
Print Name and Title of certifying official authorized to act on behalf of the applicant

Registration Does Not Imply Approval or Disapproval of Service

Appendix B

MODEL PROCEDURE FOR CALIBRATING SURVEY INSTRUMENTS

You or your contractor may use the following guidance to calibrate survey instruments. If you, or the contractor, follow all the guidance, you may say on your application, "We will establish and implement the model procedure for calibrating survey instruments that was published in Appendix B to Regulatory Guide 2.1 (Guide for the Preparation of Application for Certificate for Registration of Services for Radiation Sources)."

If your procedure does not follow the guidance in the model, you may develop your own procedure for review. If you do so, you should consider for inclusion all the features in the model. Say on your application, "We have developed a survey instrument calibration procedure for your review that is appended as Attachment 1," and append your survey instrument calibration procedure.

MODEL PROCEDURE

Radiation survey meters should be calibrated with a radioactive source. Electronic calibrations alone are not acceptable. Survey meters must be calibrated at least annually, before first use and after servicing. (Battery changes are not considered "servicing.") Instruments used to monitor higher energies are most easily calibrated in known radiation fields produced by sources of gamma rays of approximately the same energies as those to be measured. An ideal calibration source should emit the applicable radiation (alpha, beta, or gamma) with an energy spectrum similar to that to be measured and have a suitably long half-life.

The radioactive sources used for calibrating survey instruments will:

1. Approximate a point source.

2. Have its apparent source activity or the exposure rate at a given distance traceable by documented measurements to a standard certified within 5 percent accuracy by the National Institute of Standards and Technology.

3. Emit the same type of radiation as that measured and approximate the same energy as the environment in which the calibrated device will be employed.

4. Provide a radiation dose rate sufficient to reach the full scale (<1000 mR/hr) of the instrument calibrated

The inverse square law and the radioactive decay law must be used to correct for change in exposure rate due to changes in distance or source decay.

A record must be made of each survey meter calibration and retained for 3 years after each record is made.

Instrument readings should be within +/- 10% of known radiation values at calibrated points; however, readings within +/- 20% shall be acceptable if a calibration chart or graph is prepared and made available with the instrument.

The kinds of scales frequently used on radiation survey meters are calibrated as follows:

1. Meters on which the user selects linear scales must be calibrated at no less than two points on each scale. The points should be at approximately 20% and 80% of each scale.

2. Logarithmic Readout Instruments must be calibrated at one point (midpoint) on each decade.

3. Digital readout Instruments with either manual or automatic scale switching for indicating exposure rates must be calibrated at no fewer than two points on each scale. Those points should be at approximately 20% and 80% of the decade.

4. Digital readout instruments without scale switching for indicating exposure rates must be calibrated at one point (midpoint) on each decade.

5. Integrating instruments must be calibrated at two dose rates (approximately 20% and 80% of the dose rate range).

Readings above 1,000 mR/hr need not be calibrated. However, such scales should be checked for operation and approximately correct response.

The report of a survey meter calibration should indicate the procedure used and the data obtained. The description of the calibration will include:

a. The owner or user of the instrument;

b. A description of the instrument that includes manufacturer, model number, serial number, and type of detector;

c. A description of the calibration source, including exposure rate at a specified distance on a specified date, and the calibration procedure;

d. For each calibration point, the calculated exposure rate, the indicated exposure rate, the deduced correction factor (the calculated exposure rate divided by the indicated exposure rate), and the scale selected on the instrument;

e. The reading indicated with the instrument in the "battery check" mode (if available on the instrument);

f. The angle between the radiation flux field and the detector (for external cylindrical GM or ionization-type detectors, this will usually be "parallel" or "perpendicular" indicating photons traveling either parallel with or perpendicular to the central axis of the detector; for instruments with internal detectors, this should be the angle between the flux field and a specified surface of the instrument);

g. For detectors with removable shielding, an indication of whether the shielding was in place or removed during the calibration procedure;

h. The apparent exposure rate from the check source (if used); and

i. The name of the person who performed the calibration and the date on which the calibration was performed.

The following information will be attached to the instrument as a calibration sticker or tag:

a. The source that was used to calibrate the instrument;

b. The proper deflection in the battery check mode (unless this is clearly indicated on the instrument);

c. For each scale or decade, one of the following as appropriate:

(1) The average correction factor,

(2) A graph or graphs from which the correction factor for each scale or decade may be deduced, or

(3) An indication that the scale was checked for function but not calibrated or an indication that the scale was inoperative;

d. The date of calibration and the next calibration due date; and

e. The apparent exposure rate from the check source.

Note: One-word reminders or symbols that are explained on the Survey Meter Calibration Report may be used on the calibration sticker.

See Appendix C for a form you may want to use.

Survey Meter Calibration Report

Owner:_____ Department:_____

Manufacturer:_____ Type: □ Ion Chamber □ GM □ NaI(T1) □ _____

Meter model: _____ Meter S/N: _____ Probe Model:_____ Probe S/N:_____

Calibration Source: _____mCi of _____. _____mR/hr at _____ in on _____, 20___

Instrument checks: Battery check: ____mR/hr or _____

Constancy check: □ integral check source indicates _____mR/hr.

□ ____mCi of _____ indicates _____mR/hr

Calibration Geometry: □ □ □

Window: □ Open □ Closed □ Fixed

Distance (feet)	mR/hr Today	Scale:		Scale:		Scale:		Scale:	
		Rounding	Correction Factor	Rounding	Correction Factor	Rounding	Correction Factor	Rounding	Correction Factor
Correction Factors									

Name:_____
Date:_____

Cal. Date__-__-__
with_____
/ / ⊥,
window:_____
Scale Cor. Factor
_____ _____ bat:
"____mR/hr"
_____ _____
_____
_____ _____ chk:
____mR/hr"